Tribhuvan University

Institute of Science and Technology

Model Question Paper

Bachelor Level/ First Year/ Second Semester/ Science   Full Marks: 60

Computer Science and Information Technology (CSC 153)   Pass Marks: 24

(Microprocessor)   Time: 3 hours.

Candidates are required to give their answers in their own words as for as practicable.

The figures in the margin indicate full marks.

Section A: Long Answer Type Questions.

Attempt any TWO questions.   (2x10=20)

1. Draw the block diagram of SAP2 and explain each block.
2. What are the uses of flags in the microprocessor? Discuss different types of flags with suitable examples.
3. A table having starting address 3060h contains ten numbers of 8-bit data. Write a program in 8085 that transfer the data to next table having starting address 3070h if the data is less than 90h else store it to next table at 3080h.

Section B: Short Answer Type Questions

Attempt any EIGHT questions.   (8x5=40)

4. Draw and explain Von Neuman Architecture.
5. Write a micro-operation of OUT and ADD instruction in SAP1 architecture.
6. Compare 8085 and 8086 microprocessor.
7. What do you mean by addressing mode? Discuss different types of addressing modes with suitable examples.
8. Draw the timing diagram of MVI instruction.
9. What do you understand by POP operation? Explain the use of POP operation in the case of stack.
10. Write an 8085 program to multiply two 8-bit numbers.
11. Write an assembly language program to display a string "THIS IS MICROPROCESSOR LAB"using 09H function of INT 21H.
12. What is DMA? Why is it used? Explain.
13. Explain different modes of operation of 8255.

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Section A

Attempt any TWO questions: (10x2=20)

1. Draw the block diagram of basic microprocessor and explain it. Which block design is simple and explain it?
2. Why addressing modes are required in the microprocessor? Discuss different types of addressing modes with suitable examples.
3. Write a program in 8-bit Microprocessor to multiply two 16 bits numbers and store in the memory location starting from 3500h. Save the carry bits in the location starting from 3600h.

Section B

Attempt any EIGHT questions: (8x5=40)

4. Differentiate between PUSH and POP operations. Write a program to illustrate the use of PUSH operations.
5. Write an assembly language program to subtract two 16-bit numbers.
6. What do you understand by address decoding in the case of memory interfacing? Explain address decoding using 3 to 8 Decoder.
7. Which I/O interface is used in the 8-bit microprocessor? Explain different types of I/O instructions.
8. Why interrupt is required? Draw the block diagram of interrupt handler and explain it.
9. Explain the basic DMA operation with required timing diagram.
10. How can you interface 8086 microprocessor?
11. How can you achieve pipelining in the basic microprocessor? Explain any type of basic pipelining with suitable diagram.
12. Draw the timing diagram for ADD C and explain it.
13. Write an assembly language program to display a string "Assembly language coding is difficult" using 16 bit microprocessor code. Assume any necessary data.

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Section A

Attempt any two questions.   (10x2=20)

1. Explain the SAP-1 architecture with suitable block diagram. Compare it with SAP-2 architecture.

2. Explain the application of flags in the microprocessor. Discuss different types of flags with suitable examples.

3. Write a program in 8-bit Microprocessor to store 60h, BAh, 7Ch, and 10h in the memory location starting from 2000h. Add these data and store the result in 3000h and carry flag in 5000lh. Explain all the steps.

Section B

Attempt any eight questions.   (8x5=40)

4. Explain about fetch operation and timing diagram.

5. Write an assembly language program to multiply 05h and 06h. Explain all the steps.

6. What is a macro assemblers? Explain it.

7. What are the functions of I/O interface? Explain it with suitable example.

8. What do you mean by interrupt? Explain in detail about software interrupt.

9. Explain the Basic DMA Operation with required timing diagram. What are the uses of the DMA transfers?

10. Explain about RS 232 interface with suitable example.

11. Write an assembly language program to display a string "I want to know more about microprocessor" using 16 bit microprocessor code. Assume any necessary data.

12. Why parallel communication is required? Explain with reference to 8-bit system.

13. Differentiate between PUSH and POP operations with suitable example.

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Section A

Attempt any two questions.   (2x10=20)

1. Draw the block diagram of SAP2 architecture and explain it. Compare it with SAP1 architecture.
2. Explain the importance of addressing modes in the microprocessor? Discuss different types of addressing modes with suitable examples.
3. Write a program in 8-bit microprocessor to multiply two 16 bits numbers (ABCDh and 1234h) and store in the memory location starting from 3000h.

Section B

Attempt any eight questions.   (8x5=40)

4. Explain execute operation and timing diagram with suitable example.
5. Write an assembly language program to add two 16-bit numbers (3467h and ACDCh).
6. Differentiate between data and address bus with suitable example.
7. Explain different types of I/O instructions used in 8-bit microprocessor.
8. Why interrupt is required? Draw the block diagram of interrupt handler and explain it.
9. Explain the basic DMA operation with required timing diagram.
10. Explain three types of flags with suitable examples.
11. Why do we require serial communication? Explain with suitable example.
12. Explain about keyboard and display controller.
13. Write an assembly language program to display a string "I like programming in the assembly language" using 16 bit microprocessor code. Assume any necessary data.